PSP Cover Sheet										
Proposal Title:	Tuolumne River Fine	e Sediment Management								
Applicant Name:	Wilton Fryer, Turlock	k Irrigation District								
Contact Name:	Wilton Fryer									
Mailing address:	333 East Canal Drive	•								
	Turlock, CA 95381									
Telephone:	(209) 883-8316									
Fax:	(209) 656-2143									
Email:	wbfryer@tid.org									
Amount of funding requested: \$910,486										
Cost share partners X Yes No Identify partners and amount contributed by each: AFRP \$202,300 for sediment management, including \$30,700 for Task 2.2 Tuolumne River Technical Advisory Committee \$33,000										
Indicate the Topic f	or which you are app	lying (Check only one box).								
□Natural Flow Regime		nd the Riparian Corridor								
□Nonnative Invasive S	pecies	☐ Local Watershed Stewardship								
X Channel Dynamics/	Sediment Transport	☐ Environmental Education								
☐Flood Management		☐ Special Status Species Surveys and Studies								
☐ Shallow Water Tidal/	Marsh Habitat	☐Fishery Monitoring Assessment and Research								
☐ Contaminants		☐Fish Screens								
What County or Count	ties is the project located	in? Stanislaus County.								
What CALFED ecoze	one is the project locate	d in? East San Joaquin Basin (13).								
	plicant (check one box or	nly):								
☐ State agency		☐ Federal agency								
□Public/Non-profit joi										
X Local government/d	istrict	□Tribes								
☐ University		☐ Private party								
□Other:										

Indicate the primary species which the proposal addresses (Check all that apply):

San Joaquin and East-side Delta tributaries fall-run chinook salmon

Winter-run chinook salmon

Spring-run chinook salmon

Late-fall run chinook salmon

X Fall-run chinook salmon

Delta Smelt Splittail

Longfin smelt Steelhead trout

Green sturgeon

Striped bass

White sturgeon

All chinook species

Waterfowl and shorebirds

All anadromous salmonids

Migratory birds

Other listed T/E species:

American shad

Indicate the type of project (check only one box):

Research/monitoring

Watershed planning

Pilot/demo project

Education

X Full scale implementation

Is this a next-phase of an ongoing project?

Yes No X Yes X No _

Have you received CALFED funding before? If yes, list project title and CALFED number:

Mining Reach No. 1 - 7\11 Segment: CalFed CF 97-M09

Mining Reach No. 2 - MJ Ruddy Segment: CF-USBR contract in process in Portland

SRP 9: CalFed CF 97-M08

Have you received funding from CVPIA before

Yes X No

If yes, list CVPIA program providing funding, project title and CVPIA number:

Mining Reach No. 1 - 7\11 Segment: AFRP #1448-1133-97-J189, amendments #1,2,&3 also cover CF

USBR funding administered by AFRP

Mining Reach No. 2 - MJ Ruddy Segment: AFRP #11332-9-J025

SRP 9: AFRP #1448-11332-97-J189

By signing below, the applicant declares the following:

- The truthfulness of all representations in their proposal;
- The individual signing the form is entitled to submit the application of behalf of the applicant (if the applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentiality discussion on the PSP (Section 2.4) and waives any and all rights of privacy and confidentiality of the proposal on behalf of the applicant to the extent as provided in the Section.

Wilton B. Fryer

Turlock Irrigation District

Signature of applicant

B. Executive Summary

Project Title: Tuolumne River Fine Sediment Management

Amount Requested: \$910,486

Applicant Name:

Wilton Fryer, Turlock Irrigation District

Contact Name:

Wilton Fryer

Mailing address:

333 East Canal Drive

Turlock, CA 95381

Telephone:

(209) 883-8316 (219) 632-3864

Fax: Email:

wbfryer@tid.org

Participants and Collaborators: Tuolumne River Technical Advisory Committee

This project is located in the Tuolumne River in the vicinity of the town of La Grange. The objectives of this project are as follows: (1) reduce the supply of fine sediment and sand from key tributaries to the mainstem spawning reach; (2) reduce the volume of sand stored in the mainstem channel and, hence, increase substrate permeability; and (3) quantify the relationship between substrate permeability and chinook salmon survival-to-emergence. The approach for reducing the supply of fine sediment and sand to the mainstem includes implementing measures to reduce fine sediment delivery to the mainstem river from Gasburg Creek and evaluating sediment delivery from Lower Dominici Creek. Specific measures include conducting an assessment of the Gasburg Creek watershed to identify and develop recommendations for reducing sediment delivery from the upper watershed, constructing a temporary sedimentation basin on Gasburg Creek, reconstructing the Gasburg Creek channel where it flows through an inactive sand mine, and monitoring fine sediment transport on Lower Dominici Creek. The approach for reducing the volume of sand stored in the Tuolumne River is based on evaluating the volume of sand storage in pools, assessing the efficacy of various pool and riffle cleaning methods (funded under a previous project), and implementing five riffle-cleaning projects. Finally, the project would also implement a field experiment to quantify the relationship between permeability and salmon survival-to-emergence. This experiment would monitor permeability, intragravel temperature, dissolved oxygen concentration, and fry emergence from 15 constructed redds and five natural redds.

C. Project Description

1. Statement of Problem

a. Problem

The Tuolumne River drains a 1,960-square mile watershed on the western slope of the Sierra Nevada Range. The river originates in Yosemite National Park and flows southwest to its confluence with the San Joaquin River, approximately 10 miles west of the city of Modesto. Flow in the Tuolumne River is regulated by several dams (Figure 1). La Grange Dam (RM 52.5) is the upstream extent of the reach accessible to anadromous fish.

The Tuolumne River supports the largest population of fall chinook salmon in the San Joaquin Basin. During their FERC Settlement Agreement process, the Turlock and Modesto irrigation districts (hereafter "the Districts"), which own and operate New Don Pedro Dam and La Grange Dam, initiated a multi-year study to assess the dynamics of this population (TID/MID 1992a). These studies identified low survival-to-emergence resulting from the accumulation of sand in spawning gravels as a key factor limiting chinook salmon population abundance in the Tuolumne River.

Low salmonid survival-to-emergence rates in the lower Tuolumne River have been attributed to poor riffle quality, which has resulted from the deposition of fine sediment in the gravel substrate (TID/MID 1992b). Gravel quality is a key factor influencing the success of incubation and emergence of salmonid eggs and alevins. Accumulation of fine sediment in spawning gravel reduces salmonid survival-to-emergence through two mechanisms: (1) reduction of intragravel flow, and (2) entombment of emerging fry. The intrusion of fine sediment into gravel interstices reduces intragravel flow by reducing gravel permeability (Cooper 1965, Lotspeich and Everest 1981, McNeil 1964, Platts et al. 1979) and results in reduced rates of oxygen delivery to and removal of metabolic wastes (carbon dioxide and ammonia) from the eggs and alevins (Coble 1961, Silver et al. 1963, McNeil 1964, Wickett 1958). Fine sediments in the gravel interstices can also physically impair the ability of alevins to emerge through the gravel layer, trapping (or entombing) them within the gravel (Philips et al. 1975, Hausle and Coble 1976).

In 1987 and 1988, the Districts assessed the effects of fine sediment and sand on survival-to-emergence of fall chinook salmon in the Tuolumne River. This assessment used two approaches: (1) predicting survival-to-emergence based on substrate composition using the model developed by Tappel and Bjornn (1983), and (2) documenting actual survival-to-emergence by trapping alevins emerging from natural redds. Mean survival predicted by the Tappel-Bjornn survival-to-emergence model (which is based on substrate composition) for the riffles sampled in 1987 was 15.7 percent and from redds sampled in 1988 was 34.1 percent. Survival-to-emergence as documented by emergence trapping was one percent in 1988 and 32 percent in 1989. (Low emergence in 1988 was attributed to high water temperatures that occurred during incubation.) Comparison of predicted and observed egg-to-emergence survival in the Tuolumne River with that in the literature suggests that survival-to-emergence of fall chinook salmon in the Tuolumne River is substantially reduced due to poor gravel quality. For instance, laboratory experiments often report greater than 90 percent survival with clean gravel substrate (e.g., Koski 1966, McCuddin 1977, Cederholm et al. 1981, Tappel and Bjornn 1983).

In 1998, the Tuolumne River Technical Advisory Committee (TRTAC) began a program to monitor substrate permeability in riffles throughout the Tuolumne River spawning reach and to develop tools to predict survival-to-emergence using permeability. At the seven riffles sampled in 1998, predicted survival was 16–52% (Stillwater Sciences, unpublished data). Additional permeability data have been collected but have not yet been analyzed.

Reducing the input and storage of fine sediment is crucial to increasing chinook salmon production and achieving the salmon production targets set by the AFRP for the Tuolumne River (USFWS 1995). Most salmon spawning on the Tuolumne River occurs in the reach from La Grange to Basso Bridge (RM 52 to 47.8). Most of this reach is immediately downstream of Gasburg Creek, which

enters the Tuolumne River just downstream of the Old LaGrange Bridge (RM 50.4) (Figure 1). Gasburg Creek was identified in the Tuolumne River Corridor Habitat Restoration Plan (McBain & Trush 2000) as the primary source of fine sediment in the spawning reach. During the 1997 flood, approximately 200,000 yd³ of sediment was eroded from the spillway channel. Much of this sediment was deposited behind La Grange Dam. The remainder of the sediment was transported downstream and deposited in the river or on its floodplain or delivered downstream to the San Joaquin River and the Delta. Approximately 1,000 yd³ was deposited at the mouth of Gasburg Creek. During the first significant runoff event after the 1997 flood, this sediment was directly delivered into the mainstem Tuolumne River channel. Reducing or eliminating fine sediment contribution from Gasburg Creek, combined with mainstem fine sediment fluvial transport or mechanical removal, will reduce instream storage of fine sediment and improve salmon spawning and rearing habitat in this important reach. Furthermore, habitat restoration efforts downstream will benefit from fine sediment reduction by way of reduced rates of in-channel fine sediment accumulation, thereby increasing project life spans.

This proposal seeks to address fine sediment in the Tuolumne River by: (1) reducing the volume of sand currently stored in the channel bed, and (2) reducing the supply of sand from Gasburg Creek, the tributary that is currently considered to contribute the largest quantity of sand to the primary spawning reach.

This proposal constitutes the fine sediment component of the Tuolumne River sediment management program (the coarse sediment component of the program was funded by AFRP in fiscal year 2000). This project also implements two of the four tasks identified in the Tuolumne River Corridor Habitat Restoration Plan (McBain & Trush 2000) as critical to restoring and maintaining a balanced sediment budget in the gravel-bedded reach.

b. Conceptual Model:

Our underlying conceptual model is shown in Figure 2. In this model, the magnitude, timing, and spatial distribution of watershed inputs (e.g., water, sediment, and nutrients) is influenced by natural and anthropogenic disturbance. Disruptions in watershed inputs alter important geomorphic processes (e.g., sediment transport and channel migration), which construct the geomorphic attributes that determine habitat structure, complexity, and connectivity. Species abundance and population dynamics, community composition, and trophic structure are directly affected by these habitat attributes. Our case-specific conceptual model is shown in Figure 3. In this case, reduced peak flow magnitude (resulting from flow regulation) combined with increased sediment supply from a tributary downstream of the dam (i.e., Gasburg Creek), have resulted in accumulation of fine sediment and sand in spawning substrates throughout the most important chinook salmon spawning reach in the Tuolumne River. This accumulation of fine sediment has reduced chinook salmon survival-to-emergence, and (based on the results of long-term population studies) limits salmon production potential in the Tuolumne River.

c. Hypotheses Being Tested:

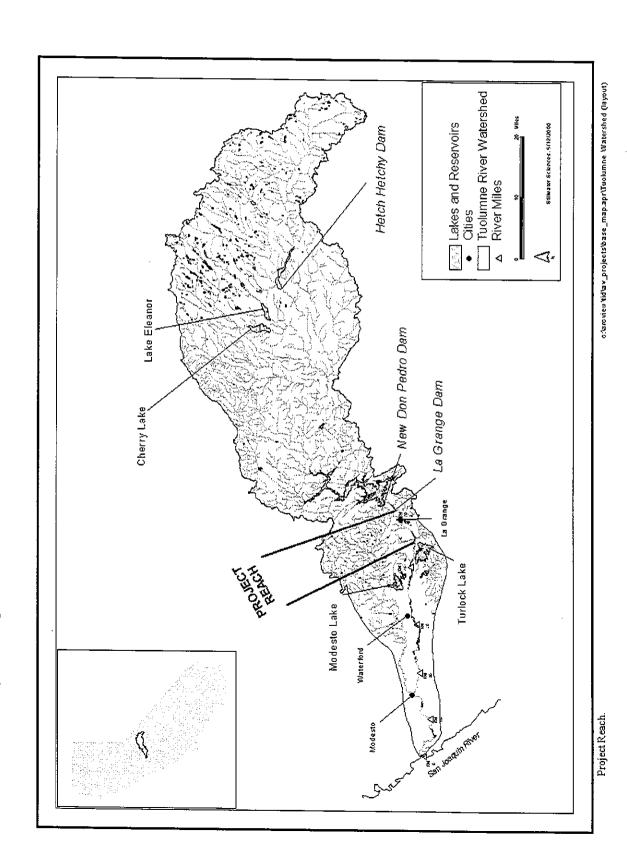
The hypotheses being tested by this approach are as follows:

- accumulation of fine sediment and sand into the bed of the Tuolumne River has reduced substrate permeability;
- ☐ reduced permeability has reduced chinook salmon survival-to-emergence; and
- reducing the supply of fine sediment and sand to the main spawning reach and reducing the volume of sand currently stored in the main spawning reach will increase substrate permeability, thereby substantially increasing chinook salmon survival-to-emergence.

d. Adaptive Management:

Adaptive management is an indispensable approach in situations of high scientific uncertainty and/or potentially high costs of resource protection actions. An adaptive management approach acknowledges our generally incomplete understanding of cause-and-effect relationships among

Figure 1. Study Area Map



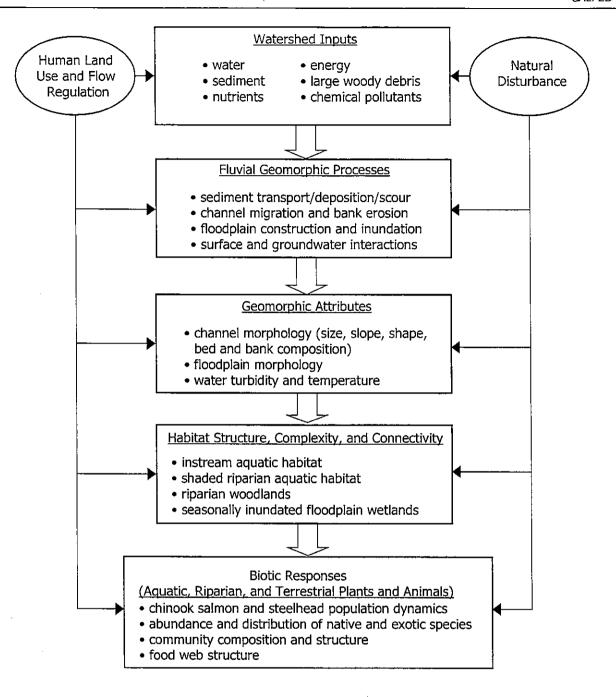


Figure 2. A simplified conceptual model of the physical and ecological linkages used in developing plans for restoration of healthy riverine ecosystems and naturally reproducing and self-sustaining salmon populations.

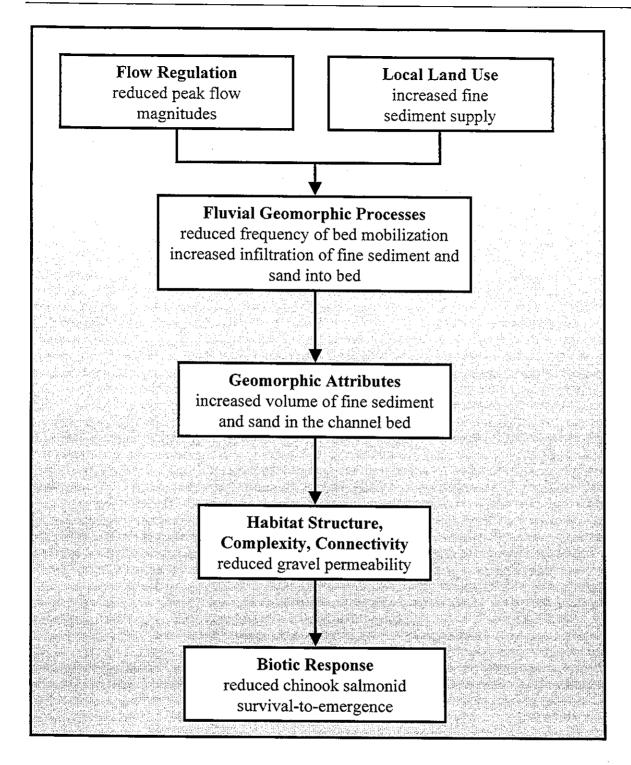


Figure 3. Conceptual model of the effects of flow regulation and land use on chinook salmon survival.

management actions, ecological processes, and resource conditions, and the uncertainty of models of ecosystem function and behavior (Holling 1978, Walters 1986, Lee 1993). This strategy treats management goals as hypotheses that can be tested through monitoring studies in which specific expectations and desired goals are compared with quantitative measures of results (Christensen et al. 1996). Walters (1997) stresses the importance of (1) integrating existing knowledge into models that predict the effects of different management alternatives and (2) designing management experiments to test model predictions to speed the learning process. It is essential to this process that a direct feedback loop exist between science and management, so that operational and policy decisions can be modified in light of new scientific information.

The proposed project implements the components of the TRTAC's adaptive management strategy. The monitoring and management approach being implemented by the TRTAC is defined in the 1995 FSA, which requires extensive monitoring. Through previous studies and the TRTAC monitoring program, poor substrate quality (due to accumulation of fines in the substrate) has been identified as a major factor limiting chinook salmon production in the Tuolumne River. This project will implement measures to reduce the supply of fine sediment and sand to the spawning reach and to test and implement actions to reduce the volume of sand currently stored in the channel. The program also includes additional research and monitoring to: (1) quantify the relationship between permeability and survival-to-emergence, and (2) evaluate the success of the implemented measures in increasing substrate permeability and improving survival-to-emergence.

e. Educational Objectives:

This proposal does not have an education objective.

2. Proposed Scope of Work

a. Location/Geographic Boundaries of Project:

This project is located within the Tuolumne River drainage in Stanislaus County (Figure 1) and is within CALFED's Tuolumne River Ecological Management Unit, which is included the East San Joaquin Basin Ecological Management Zone. This "management zone" also includes the Merced and Stanislaus rivers. The centroid of the project area is: 2011879,418984 (California State Plane, zone = 3326, units = feet, datum = NAD27).

b. Approach:

This project seeks to complement a number of projects currently underway in the Tuolumne River (see Section D2 for a description of related projects). The specific objectives of this project are to: (1) reduce the supply of fine sediment and sand from key tributaries to the mainstem spawning reach; (2) reduce the volume of sand stored in the mainstem channel and, hence, increase substrate permeability; and (3) quantify the relationship between substrate permeability and chinook salmon survival-to-emergence.

Objective 1: Reduce the supply of fine sediment to the Tuolumne River. The Tuolumne River Corridor Restoration Plan identifies Gasburg Creek as the major contributor of sand to the spawning reach (McBain & Trush 2000). Gasburg Creek has a drainage area of 3.5 square miles and enters the Tuolumne River 1.5 miles downstream of the La Grange Dam. Lower Dominici Creek, which enters the Tuolumne River at RM 47.8, may also be an important sand source. The Restoration Plan recommends additional monitoring of Lower Dominici Creek (McBain & Trush 2000).

Objective 1A. Reduce Sediment Supply from Gasburg Creek

<u>Task 1A.1 Conduct reconnaissance-level assessment of the Gasburg Creek watershed.</u> This task will evaluate the contribution of sediment from Gasburg Creek to the Tuolumne River relative to the volume of sand stored in the Tuolumne River (see Task 2.1), identify major sediment sources within the Gasburg Creek watershed, and provide recommendations for reducing sediment delivery from the

watershed. The task includes review of available reports and maps, analysis of aerial photographs, coordination with local landowners, and a brief reconnaissance-level field survey.

<u>Task 1A.2 Construct a sedimentation basin in Gasburg Creek.</u> This project would immediately reduce the volume of sand contributed to the mainstem spawning reach by constructing a temporary sedimentation basin on the creek, adjacent to the toe of the Modesto Irrigation District canal. Project designs and construction cost estimates for this sedimentation basin have been completed by McBain & Trush in coordination with the California Department of Fish and Game (CDFG). Implementation would occur in coordination with CDFG (which occupies the property) and the California Department of Water Resources (CDWR) (which owns the property). Funding for this task includes coordination with these agencies, effort required to obtain all required permits, basin construction, and monitoring and maintenance for a period of one year.

<u>Task 1A.3 Reconstruct the Gasburg Creek channel in the reach within the sand mine</u>. Gasburg Creek flows through an inactive sand mine (near the confluence with the Tuolumne River). The channel was highly disturbed by mining activities, which reconfigured the creek, dumped fill and asphalt into the creek, and removed all riparian vegetation. This task includes channel restoration design and implementation for a 300-foot reach of the creek downstream of the sedimentation basin, including coordination with agencies and acquisition of required permits.

Objective 1B. Conduct recommended monitoring of Lower Dominici Creek.

Task 1B.1 Monitor fine sediment transport during storm events on Lower Dominici Creek. The Tuolumne River Restoration Plan identifies Lower Dominici Creek as potentially a major source of fine sediment to the mainstem river (McBain and Trush 2000). The volume of sediment delivered from this creek, however, is poorly understood, and the restoration plan recommends bedload sampling at the site to document sand discharge. Under this task, bedload samples would be collected using a Helley-Smith sampler during three storm events.

Objective 2: Reduce the volume of sand currently stored in the Tuolumne River channel bed. Task 2.1 Conduct reconnaissance-level survey to assess the importance of sand storage in pools. Sand storage in riffles throughout the spawning reach has been assessed by the TRTAC monitoring program. Sand storage in pools, however, has not been evaluated, and the volume and relative importance of this storage component is not understood. This task includes a three-day reconnaissance that will use a simplified V* approach (Lisle and Hilton 1992, 1999) to assess sand storage in pools throughout the spawning reach. If sand storage in pools is found to be significant, removal methods will be evaluated, as described in Task 2.2 below.

Task 2.2. Evaluate alternative methods of removing fine sediment and sand stored in pools and riffles in the spawning reach. [This task is being funded by the AFRP. No additional funding is requested.]
In 1991 and 1992, the Districts conducted a field study comparing various riffle cleaning methods.
Three cleaning methods were implemented: (1) ripping, using a bulldozer with a blade angled to plow furrows through the riffle; (2) sorting, using an excavator to lift buckets full of gravel and drop it back into the channel and allowing fine sediment and sand to be winnowed out and transported downstream; and (3) hydraulic cleaning, using a machine that forced water into the riffles and "vacuumed" out the sand. The data from this field test have not been analyzed. Available data include bulk samples taken before and after the cleaning treatment and underwater photography. This task includes analysis of the available data described above as well as field testing of methods to remove sand from pools (e.g., suction dredging).

Task 2.3. Implement projects to clean five riffles in the spawning reach. Based on the results of the data analysis conducted in Task 2.2, the most suitable measures identified will be implemented at five sites. This task includes project planning, implementation, and initial monitoring.

Objective 3: Quantify the relationship between substrate permeability and chinook salmon survival-to-emergence.

Task 3.1. Conduct a field-based experiment to evaluate the relationship between permeability and survival-to-emergence. As described in Section C1 above, substrate permeability is a major factor determining salmon survival-to-emergence. Cost-effective field methods for measuring permeability are available. Few studies, however, have related permeability directly to the rate of survival-to-emergence, and no studies have directly related survival-to-emergence and permeability in the field. The ability to relate measurements of permeability to potential survival-to-emergence, therefore, is extremely limited. This task would implement a field study to quantify the relationship between permeability and survival-to-emergence. This study would be based on trapping emerging fry from constructed redds (with a known number of eggs) in the Tuolumne River. At each constructed redd, the following data would also be collected: permeability (weekly, using a standpipe that would be installed in the redd an left in place throughout the duration of the study), dissolved oxygen concentration (weekly), and intragravel temperature (continuous, using thermographs buried in the gravel). The experiment would include 15 constructed and five natural redds.

c. Monitoring and Assessment Plan:

Objective 1: Reduce the supply of fine sediment to the Tuolumne River. Under Objective 1, the performance of the sedimentation basin and the channel reconstruction would be monitored. For Task 1A.2, the volume of material stored in the basin would be monitored weekly during the fall and winter, and maintenance would be implemented as needed. For Task 2A.2, specific monitoring for the reconstructed channel would be developed based on the final channel design and would include monitoring of the constructed channel cross section and monitoring of planted riparian vegetation. In addition to this task-specific monitoring, the efficacy of these measures in reducing sand discharge from Gasburg Creek would be monitored by placing sediment traps in the bed of the mainstem river upstream and downstream of the creek confluence.

Objective 2: Reduce the volume of sand currently stored in the Tuolumne River channel bed. Monitoring of the five implementation projects will be based on measuring permeability before cleaning, immediately following cleaning, and one year after cleaning. This monitoring will be coordinated with the TRTAC's ongoing permeability monitoring program and will follow the monitoring protocol developed by the TRTAC. Also, CDFG currently documents spawning at all riffles in the Tuolumne River. Adult use of the cleaned riffles for spawning will be monitored as part of this ongoing program.

Objective 3: Quantify the relationship between substrate permeability and chinook salmon survival-to-emergence. This task consists of monitoring and research and does not require additional monitoring.

d. Data Handling and Storage:

The Project Team will assemble existing project data from the Tuolumne Irrigation District, CDFG, and subcontractors. New data sets will be integrated into the existing data whenever possible. Electronic data will be stored in relational database or similar format, and the Project Team will retain

all data at TID in Turlock. TID will retain all project files, including data, metadata, maps, and other information for a period of five years upon completion of the work. For field data collection, the Project Team will use standard quality assurance and control (QA/QC) methods in designing sampling protocols and in obtaining, recording, and analyzing data. All field data will be recorded on standard data sheets and in field books.

e. Expected Products/ Outcomes:

Reports, designs, and project implementation that would be outcomes of this project are shown in Table 1. In addition, completion of Task 3.1 will provide new knowledge of the relationship between permeability and survival-to-emergence that could be directly applied to salmon habitat monitoring and management throughout the state.

Table 1. Anticipated outcome and products

Task		Technical Memo	Construction Design	Project Implemen- tation	Project Monitoring Report	New Research				
1A.1	Construct a sedimentation basin in Gasburg Creek	- , <u>, , , , , , , , , , , , , , , , , ,</u>								
1A.2	Reconstruct the Gasburg Creek channel in the reach within the sand mine									
1A.3	Conduct reconnaissance-level assessment of the Gasburg Creek watershed									
1B.4	Conduct recommended monitoring of Lower Dominici Creek									
2.1	Conduct reconnaissance-level survey to assess the importance of sand storage in pools									
2.2	Evaluate alternative methods of removing fine sediment and sand stored in pools and riffles in the spawning reach	This task is being completed under previously funded project.								
2.3	Implement projects to clean five riffles in the spawning reach									
3	Quantify the relationship between permeability and survival-to- emergence									

f. Work Schedule:

The work schedule is shown in Table 2.

Table 2. Proposed work schedule.

		Oct-00	Nov-00	Dcc-00	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Jun-01	Jul-01	F-01	Sep-01	Oct-01	Nov-01	ē	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02	-05	Oct-02	Nov-02	Dec-02
TASK	DESCRIPTION	ŏ	ž	2	-	골	ž	~	Ž	1	Jul	7	Sel	ŏ	ž	å	Jar	9	Ë	÷	ž	اجًا	3	اجا	اجا	ठै।	اع	ă
Reduce	Sediment Supply from Gasburg Creek						Г			Ť	Ė	Ť		Ī			ŕ				_		Ť,			┪	Ť	_
1A.1	construct a sedimentation basin in Gasburg Creek																					П				Ì	П	_
	permitting and design	_		_			Т	-	1	Т						П	_	_				М	_	П	Н	┪	\neg	_
	construction					Г		Ì		-				П		П							_	П	П	┪	\neg	_
1A.2	reconstruct the Gasburg Creek channel in the reach within the sand mine																				Г			П				_
	permitting and design								1								Т	П	_			Г		П	H	┪	\neg	_
	construction							\vdash					Г	Г				П	Т			П	-	-	Н	_	\neg	_
1A,3	conduct reconnaissance-level assessment of the Gasburg Creek watershed						Г												Г			П		П	П			
Conduc	t recommended monitoring of Lower Dominici C	rec	k					_	İΤ				Ι-	Т	H	Т	_	Н	Н	_	Н	\vdash		Н	Н	_	\neg	_
1B.1	evaluate fine sediment transport during storm events on Lower Dominici Creek		Ī																			П	_	П	П			
Reduce	the volume of sand currently stored in the Tuolu	mn	c R	iver	· ch	200	el 1	led lead	m		-		H	Н	 	Н	\vdash	-	_	\vdash	-	Н	Н	Н	Н	-1	-	_
2.1	conduct recommissioner level converts and all						., .					:			Г							П		П				_
2.2	evaluate alternative methods of removing fine sediment and sand stored in pools and riffles in the spawning reach			3.3 33.			: : : : : : : : : : : : : : : : : : : :			100		40.00							_					П				
2.3	spawning reach			_												-							14. 174.	35	Ì			
Quantif	y the relationship between survival-to-emergence	e ar	id s	u bs	trat	e pe	erm	eab	ilit	$\overline{}$				Т	Т	Т	Г	_				Г			Н	\neg	П	_
	implement a field-based experiment to assess the relationship between permeability and survival-to- emergence												.i.,															

g. Feasibility:

The feasibility of each project objective is evaluated below. In general:

The methods proposed in this work plan have been shown to be effective and are techniques with which members of the work team have extensive experience and expertise.
The Tuolumne River is regulated in the project reach and the risk of unanticipated flooding is therefore minimal. Rainfall in the region is highly predictable and should not pose any unexpected problems.
Property access agreements will not be an impediment to the implementation of this project. Contacts with the owners of riverside property through which access will be necessary are already well developed by Stillwater Sciences, McBain & Trush, and the TRTAC. A GIS coverage of all riverside landowners, with contact information, has been developed by TID/MID and used by project team members in ongoing Tuolumne River restoration and monitoring projects.

Objective 1: Reduce the supply of fine sediment and sand from key tributaries to the mainstem spawning reach.

\sqcup	Minimizing fine sediment transport using a sediment trap or basin is a common practice in wide use
	across the United States. The design for the sedimentation basin proposed as a part of this project
	was prepared by McBain & Trush in coordination with CDFG and uses standard methods that have
	been shown to achieve the desired objective.
П	Watershed accomment is widely were will describe the second of the secon

Watershed assessment is widely recognized as a standardized and effective method of collecting data on geomorphic and biological attributes of a stream basin. Project team members have extensive experience conducting watershed assessments on large rivers, and fine sediment source evaluations are a routine part of this work. One of the firms involved in this proposal conducted a preliminary fine sediment survey upon which this portion of the proposal is based (McBain & Trush 2000).

The project team members are experienced in the methods proposed to monitor fine sediment transport for this objective. These methods are based on published standards and are applied widely to similar studies of fine sediment transport.

Objective 2: Reduce the volume of sand currently stored in the Tuolumne River channel bed

Stream cleaning methods and machinery were extensively investigated as part of the New Don Pedro Project FERC re-licensing requirements (TID/MID 1997). There are two general categories of fine sediment removal technology: (1) hydraulic removal (Einstein 1965, Shields 1968, Andrew 1981, Mundie and Mounce 1978, Mih 1979, Mih and Bailey 1981, and TID/MID 1992), and (2) mechanical removal (Wilson 1976, Mih 1978, Andrew 1981, Hall and Baker 1982). Although a decision regarding the category of the preferred cleaning technology for this proposal has not been made at this time, hydraulic cleaning appears to produce the best results with the least ecological damage. In general, hydraulic cleaning appears to be a feasible alternative to mimicking increased streamflow under circumstances similar to those on the Tuolumne River (McBain & Trush 2000).

Objective 3. Quantify the relationship between substrate permeability and chinook salmon survival-to-emergence.

- Analysis of the information collected in this project component will allow the feasibility of developing such a relationship to be determined. Project team members have successfully implemented a pilot study under the auspices of the TRTAC to test this relationship in the Tuolumne River. This pilot study demonstrated the ability of the project team to collect, analyze, and interpret the type of data that will be required to meet this project objective.
- The equipment and methodology for assessing permeability are well established (Terhune 1958, Barnard and McBain 1994). Relating this information to ecological processes (i.e., survival-to-emergence), although not uncommon (Tagart 1976, McCuddin 1977), is a body of knowledge that is less developed. One working hypothesis entertained by the scientists collaborating on this proposal is that gravel permeability is a better indicator of ecological condition than is gravel composition. This proposal should be viewed as an opportunity to test a conceptual model regarding a critical life stage for fall chinook salmon. Acceptance or rejection of this hypothesis will provide valuable information about the ability to use a physical habitat type to predict survival-to-emergence.
- Emergence trapping is a widely used means of assessing the rate of survival from of salmonids from egg to emerged juvenile (Porter 1973, Field-Dodgson 1983). In fact, emergence trapping has been conducted within the proposed study area on the Tuolumne River (TID.MID 1992b). This sampling is a critical component necessary to develop an empirical relationship between gravel permeability and survival-to-emergence.

D. Applicability to CALFED ERP Goals and Implementation Plan, and CVPIA Priorities

1. ERP Goals

CALFED's ERP Plan has identified the Tuolumne River watershed as a demonstration watershed for the CALFED Stage 1 (first seven years) Implementation Program (CALFED 1999). The Tuolumne River is also classified by CALFED as Essential Fish Habitat; the freshwater habitat of the Tuolumne River is needed to ensure the sustainability of resident native and anadromous fish species, including chinook salmon. As such, the vision defined by CALFED for the Tuolumne River, as applicable to the work proposed here, includes:

- 1) Reducing fine sediment input to the river;
- 2) Restoring a balanced fine sediment budget; and
- 3) Increasing the magnitude and frequency of short duration peak flows to initiate bed mobility and localized scour and deposition.

CVPIA Priorities

The AFRP Working Paper on Restoration Needs (USFWS 1995) identifies the following as potential solutions to address the sedimentation of spawning gravel:

- 1) Facilitate transport of fine sediments by restoring the balance between river channel configuration and flow regime;
- 2) Mechanically clean spawning gravels that have been degraded as a result of sedimentation; and
- 3) Construct sediment retention basins and support land use practices that reduce sediment input.

The goals of this project are consistent with the goals of both CALFED's Ecosystem Restoration Program Plan and the CVPIA's Anadromous Fish Restoration Program (AFRP). Our comprehensive strategy to reduce both the storage of fine sediment in the channel bed and inputs of fine sediment in the study area mirrors the recommendations contained in the ERP and CVPIA goals. This work is also consistent with the recommendations of the *Tuolumne River Corridor Restoration Plan* (McBain & Trush 2000) and was in fact developed in response to the fine sediment reconnaissance surveys described in the Plan.

2. Relationship to Other Ecosystem Restoration Projects

The proposed project has been developed in response to recommendations developed by a multiyear assessment of fish population dynamics and by the Tuolumne River Restoration Plan. The project is also coordinated with ongoing substrate permeability monitoring being conducted by the TRTAC and with ongoing salmon spawning monitoring being conducted by CDFG.

In addition, this project represents the fine sediment component of the Tuolumne River Sediment Management Plan, which was submitted for funding in FY 2000. In response to the FY 2000 proposal, only the coarse sediment management component of the overall effort was funded. These two components were developed in conjunction with one another, and the long-term success of the coarse sediment program requires reduction of fine sediment supply to the spawning reach.

3. Requests for Next-Phase Funding

Funds for additional phases are not being requested.

4. Previous Recipients of Cal Fed or CVPIA Funding

TID and the TRATC have received CALFED and AFRP funding for development of the Tuolumne River Restoration Plan (for which the TRTAC provided a 50 percent cost share), for implementation of restoration projects known as the Gravel Mining Reach (Phases I and II) and SRPs 9 and 10, and for the coarse sediment component of the sediment management plan. The project titles and numbers are as follows:

Mining Reach No. 1 - 7/11 Segment

CalFed CF 97-M09

AFRP #1448-11332-97-J189, amendments #1,2,&3 also cover CF-USBR funding administered by AFRP

Mining Reach No. 2 - MJ Ruddy Segment

AFRP #11332-9-J025 CF-USBR contract in process in Portland

SRP 9

CalFed CF 97-M08 AFRP #1448-11332-97-J189

5. System Wide Ecosystem Benefits

Prior to flow regulation, large floods, bedload transport, and channel migration resulted in a dynamic channel morphology and diverse riparian and instream habitat conditions (McBain & Trush 2000). Because attributes of river ecosystem integrity are defined by the physical processes that create and maintain the system's physical structure, alteration of these processes causes concurrent degradation of the river ecosystem. Physical alteration of the channel morphology, dams and flow regulation, and elimination of coarse sediment supply have cumulatively degraded chinook salmon habitat in the gravel-bedded reaches of the Tuolumne River (McBain & Trush 2000).

By reducing the input and storage of fine sediments, this project will take significant steps toward restoring a balanced fine sediment budget in the Tuolumne River. This project will aid in restoring a key component of the river's physical framework by identifying and implementing the most effective methods to restore the fine sediment balance in the primary spawning reach. Reducing fine sediment inputs and storage will increase available holding habitat for adult salmon and increase the suitability of surface particle interstices for use as fry rearing habitat. Improving gravel permeability by cleaning will improve chinook salmon survival-to-emergence and reduced fine sediment inputs will reduce the potential for fry entombment. The cleaning of fine sediments from gravel may also increase the diversity of invertebrates used by juvenile salmon and many other fish as food resources.

Increased production of salmon also benefits other components of the river ecosystem. Many organisms, including birds, small mammals, amphibians, and invertebrates, benefit from the increased nutrient input and prey availability resulting from the juvenile and adult portions of the salmon lifecycle. The availability of juvenile salmon as prey for native piscivores and the nutrient pulse caused by the decay of salmon carcasses are important component of the river's food web, and will be improved as a result of the proposed project.

E. Qualifications

The Turlock Irrigation District is an energy and water services provider serving 5,800 growers, 65,000 electric customers, and 160,000 citizens in Stanislaus and Merced Counties. Since 1971, TID, MID, and CCSF have, in cooperation with CDFG and USFWS, monitored river conditions and developed programs that enhance the natural production of fall-run chinook salmon in the Tuolumne River.

Wilton Fryer, P.E. graduated from the University of California at Davis with a BS in Soil & Water Science, an MS in Irrigation Science, and later an ME in Civil Engineering with an emphasis in water resources. He is currently registered as both a Civil Engineer and an Agricultural Engineer. His accomplishments include: development and implementation of the Oakdale Irrigation District Irrigation Master Plan; director of a \$22 million canal rehabilitation project for OID where 54 miles of dirt canals were replaced with pipe; development of the OID domestic water service system; and design and project management for a replacement water treatment plant for the TID La Grange Domestic Water System. He has been the restoration program manager for TID since July 1996.

<u>Stillwater Sciences</u> is a firm of biological and geological scientists. The company specializes in developing new scientific approaches and technologies for environmental problem solving in aquatic and terrestrial systems. Its founding members are experienced in freshwater ecology, fisheries and wildlife biology, riparian and wetland ecology, entomology, botany, and hillslope and fluvial geomorphology. Stillwater's experience includes evaluation of the environmental impacts of a variety of projects and the development of wetland and riparian mitigation and monitoring plans. Stillwater Sciences team members have conducted biological, geomorphic, hydraulic, and hydrologic analyses on the Merced, Tuolumne, and Stanislaus rivers.

Frank Ligon is an aquatic ecologist and geomorphologist specializing in investigations of the role of fluvial processes in the ecology of stream fish, invertebrates, and plant communities. He has successfully managed several complex, long-term projects, including projects involving watershed analysis, salmon ecology and restoration, geomorphology and riverine ecosystem restoration. On the Tuolumne River, Mr. Ligon managed fisheries studies for the Turlock and Modesto Irrigation Districts from 1987 to 1996 and continues working for the Districts on Tuolumne River and Central Valley fisheries issues.

Jennifer Vick is an ecologist and geomorphologist who has spent the past four years investigating geomorphic processes as they relate to chinook salmon habitat in the Merced, Tuolumne, and Stanislaus rivers. Her recent work includes monitoring of large-scale aquatic and riparian habitat restoration projects, evaluation of chinook salmon survival and population dynamics, and assessment of chinook salmon habitat quality on the lower Tuolumne River in association with the Tuolumne River Technical Advisory Commission (TRTAC). Ms. Vick also spent four years in the Corps of Engineers San Francisco District Regulatory Branch and has extensive experience in Tuolumne River planning, environmental regulation, and permitting procedures.

Anthony Keith is an ecologist with over 12 years of experience in aquatic and terrestrial ecology. He specializes in stream ecology and geomorphology, aquatic and terrestrial entomology, and watershed management. He has researched food webs and trophic interactions in stream and riparian ecosystems in the western United States and has conducted numerous aquatic and terrestrial natural resource inventories, developed resource management plans, prepared environmental impact documents, and developed species recovery plans. On the Tuolumne River, he participated in the assessment of fish and invertebrate populations, spawning gravel quality, and juvenile chinook salmon outmigration. Mr. Keith

is currently involved in instream and riparian habitat restoration planning and monitoring efforts for the Tuolumne River.

Dirk Pedersen has over 9 years experience in studying aquatic ecology and stream channel relationships. Mr. Pedersen has particular expertise in aquatic ecology and fish habitat relationships, watershed analysis, fluvial geomorphology, aquatic entomology, and the effects of dams on aquatic and riparian ecosystems. His areas of technical expertise include salmonid ecology. Mr. Pedersen has many years of experience in the development and implementation of watershed analysis techniques, and fluvial processes, and the effects of watershed-level disturbances on stream dynamics and aquatic habitat conditions. His current duties involve management of a 500,000-acre watershed analysis project, development and implementation of field sampling and monitoring strategies, data analysis, and report writing.

John M. O'Brien is an engineer with more than eight years experience in the design and construction of reclamation projects addressing drastically disturbed lands. His areas of expertise include mine reclamation, surveying, and drilling and blasting. He is experienced in disturbed land inventory, project design, and project management.

<u>McBain and Trush</u> is a professional consulting firm applying fluvial geomorphic and ecological research to river preservation, management, and restoration. McBain and Trush has considerable experience in river corridor restoration, including: Mono Basin Stream Restoration Work Plan, Maintenance Flow Study on the Trinity River, and the Tuolumne River Corridor Restoration Plan.

Scott McBain is an assistant hydraulic engineer/fluvial geomorphologist whose interests include bed mobility, bedload transport, effects of high flows on channel morphology, watershed sediment yields, and stream restoration. He completed his Master of Science degree in Civil Engineering at the University of California at Berkeley, studying hydraulic engineering under Dr. H.W. Shen and geomorphology under Dr. William E. Dietrich.

Darren Mierau is an aquatic ecologist specializing in inland fisheries research and management, stream ecology, and salmonid biology. He completed his Master of Science degree in the Biology program at Humboldt State University, studying the taxonomy and community ecology of benthic invertebrates in Hat Creek, CA. His interests include aquatic invertebrates, fish population dynamics, and methods to quantify the link between stream physical processes and fish habitat.

F. Cost

1. Budget

The estimated total budget for the project is \$910,486, including \$623,806 for work in the Gasburg Creek watershed, \$170,799 for sediment storage reconnaissance and implementation of gravel cleaning, and \$115,881 for quantifying the relationship between permeability and survival-to-emergence. Budget detail is given in Table 3.

Table 3. Estimated costs for each task and the total amount of funding being requested from CALFED.

		Service	Overhead	
Year	Task	Contract	(3%)	Total Cost
	1A.1 Reconnaissance-level assessment of			
Year 1	Gasburg watershed	15,161	454.82	15,615
	1A.2 Construct sediment basin	100,000	3,000.00	103,000
	1A.3 Reconstruct Gasburg channel	100,000	3,000.00	103,000
	1B Monitoring of Lower Dominici Creek	10,476	314.29	10,791
	2.1 Reconnaissance-level survey - sand pools	9,631	288.94	9,920
	2.3 Implement cleaning of five riffles		_	
	2 Task 2 report	10,430	312.89	10,743
	3 Survival-to-emergence - substrate			[
	permeability	112,505	3,375.16	115,881
Yearl To	otal Cost	358,203	10,746	368,949

Year 2 To	otal Cost	mplement cleaning of five riffles 145,764 4,372.91 port - rvival-to-emergence – substrate neability	541,537	
	permeability		_	_
	2 Report 3 Survival-to-emergence – substrate		-	
	2.3 Implement cleaning of five riffles	145,764	4,372.91	150,137
	2.1 Reconnaissance-level survey -sand pools		-	-
	1B Monitoring of Lower Dominici Creek		-	-
	1A.3 Reconstruct Gasburg channel	170,000	5,100.00	175,100
	1A.2 Construct sediment basin	210,000	6,300.00	216,300
Year 2	1A.1 Reconnaissance-level assessment of Gasburg watershed		_	

2. Cost-Sharing

Project Total Cost

The proposed project is the fine sediment component of the Tuolumne River Sediment Management and Implementation Plan. The AFRP funded \$205,200 of the coarse sediment component and a portion of the fine sediment component of this plan in FY 2000. In addition, in-kind funding from the TRTAC totals \$33,000.

883,967

26,519

91 0,486

G. Local Involvement

This project was developed by the TRTAC as a component of its Tuolumne River restoration effort. The TRTAC includes active participants from the Districts, City and County of San Francisco, CDFG, U.S. Fish and Wildlife Service, Friends of the Tuolumne, and Tuolumne River Preservation Trust.

H. Compliance with Standard Terms and Conditions

Applicant is a public entity. The applicable PSP project group type is Public Works Non-Construction. The applicant agrees to the terms and conditions of the 2001 Proposal Solicitation Package and as amended by CALFED's Responses to PSP Questions dated 12 April 2000 and applicant intends to comply with those terms and conditions.

Enclosed are the following completed forms:

Non-collusion Affidavit
Non-discrimination Compliance Statement
Environmental Compliance Checklist
Land Use Checklist
Federal & State contract forms

Submitted by:

TURLOCK IRRIGATION DISTRICT

Bv

Chris L. Kiriakou, General Manager

Date: 15 May 2000

I. Literature Cited

Andrew, F.J. 1981. Gravel cleaning to increase salmonid production in rivers and spawning channels. Pages 15-31 *in* Salmon-spawning gravel: a renewable resource in the Pacific Northwest? Report No. 39. State of Washington Water Research Center, Washington State University, Pullman, and the University of Washinton, Seattle.

Barnard, K., and S. McBain. 1994. Standpipe to determine permeability, dissolved oxygen, and vertical particle size distribution in salmonid spawning gravels. Fish Habitat Relationships Technical Bulletin No. 15. U. S. Forest Service.

Cederholm, C. J., L. M. Reid, and E. O. Salo. 1981. Cumulative effects of logging road sediment on salmonid populations in the Clearwater River, Jefferson County, Washington. Pages 38-74 in Salmon-spawning gravel: A renewable resource in the Pacific Northwest? Report No. 39. State of Washington Water Research Center, Washington State University, Pullman, and the University of Washington, Seattle.

Coble, D. W. 1961. Influence of water exchange and dissolved oxygen in redds on survival of steelhead trout embryos. Transactions of the American Fisheries Society 90: 469-474.

Cooper, A. C. 1965. The effect of transported stream sediments on the survival of sockeye and pink salmon eggs and alevin. Bulletin 18. International Pacific Salmon Fisheries Commission, New Westminster, British Columbia, Canada.

Einstein, H. A. 1965. Spawning grounds. Final Report, Contract No. 14-06-200-436-A. Prepared for the U. S. Bureau of Reclamation by Hydraulic Engineering Laboratory, University of California, Berkeley.

Field-Dodgson, M. S. 1983. Emergent fry trap for salmon. The Progressive Fish-Culturist 45: 175-176.

Hall, J. D., and C. O. Baker. 1982. Rehabilitating and enhancing stream habitat: 1. Review and evaluation. General Technical Report PNW-138. U.S. Forest Service.

Holling, C. S., editor. 1978. Adaptive environmental assessment and management. John Wiley and Sons, New York.

Koski, K. V. 1966. The survival of coho salmon (Oncorhynchus kisutch) from egg deposition to emergence in three Oregon coastal streams. Master's thesis. Oregon State University, Corvallis.

Lee, K. N. 1993. Compass and gyroscope: integrating science and politics for the environment. Island Press.

Lotspeich, F. B., and F. H. Everest. 1981. A new method for reporting and interpreting textural composition of spawning gravel. Research Note PNW-369. U. S. Forest Service, Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

McBain and Trush. 2000. Tuolumne River Restoration Plan. Prepared for the Tuolumne River Technical Advisory Committee, Turlock, CA.

McCuddin, M. E. 1977. Survival of salmon and trout embryos and fry in gravel-sand mixtures. Master's thesis. University of Idaho, Moscow.

Mih, W.C. 1979. Hydraulic restoration of stream gravel for spawning and rearing of salmon species. Report No. 33., State of Washington Research Center, Washington State University, Pullman.

Mih, W.C. and G.C. Bailey. 1981. The development of a machine for the restoration of stream gravel for spawning of rearing of salmon. Fisheries6:16-20.

Mundie, J.H. and D.E. Mounce. 1978. Application of stream ecology to raising salmon smolts in high density. Internationale Verienigung fuer Theoretische and Angewandte Limnologie Verhandllungen 20:2013-2018.

McNeil, W. J., and W. H. Ahnell. 1964. Success of pink salmon spawning relative to size of spawning bed materials. Special Scientific Report - Fisheries 469. U. S. Fish and Wildlife Service.

Platts, W. S., M. A. Shirazi, and D. H. Lewis. 1979. Sediment particle sizes used by salmon for spawning with methods for evaluation. Ecological Research Series EPA-600/3-79-043. U. S. Environmental Protection Agency, Corvallis Environmental Research Laboratory, Corvallis, Oregon.

Porter, T. R. 1973. Fry emergence trap and holding box. The Progressive Fish-Culturist 35: 104-106.

Shields, H.J. 1968. Riffle sifter for Alaska salmon gold. Separate 3586. 1968 Yearbook of Agriculture.

Silver, S. J., C. E. Warren, and P. Doudoroff. 1963. Dissolved oxygen requirements of developing steelhead trout and chinook salmon embryos at different velocities. Transactions of the American Fisheries Society 92: 327-343.

Tagart, J. V. 1976. The survival from egg deposition to emergence of coho salmon in the Clearwater River, Jefferson County, Washington. Master's thesis. University of Washington, Seattle.

Tappel, P. D., and T. C. Bjornn. 1983. A new method of relating size of spawning gravel to salmonid embryo survival. North American Journal of Fisheries Management 3: 123-135.

Terhune, L. D. B. 1958. The Mark VI groundwater standpipe for measuring seepage through salmon spawning gravel. Journal of the Fisheries Research Board of Canada 15: 1027-1063.

TID/MID (Turlock and Modesto Irrigation Districts). 1992a. Report of Turlock Irrigation District and Modesto Irrigation District Pursuant to Article 39 of the License for the Don Pedro Project, No. 2299. Vol. II. Prepared by EA Engineering, Science, and Technology, Lafayette, California.

TID/MID (Turlock Irrigation District and Modesto Irrigation District). 1992b. Lower Tuolumne River spawning gravel studies report. Appendix 8 to Don Pedro Project Fisheries Studies Report (FERC Article 39, Project No. 2299). *In* Report of Turlock Irrigation District and Modesto Irrigation District Pursuant to Article 39 of the License for the Don Pedro Project, No. 2299. Vol. IV. Prepared by EA Engineering, Science, and Technology, Lafayette, California.

TID/MID (Turlock Irrigation District and Modesto Irrigation District). 1997. Gravel Cleaning Report: 1991-1993. Report 96-10 in 1996 FERC report: lower Tuolumne River. Volume II. Prepared by EA Engineering, Science, and Technology, Lafayette, California.

Walters, C. J. 1986. Adaptive management of renewable resources. McGraw-Hill.

Walters, C. 1997. Challenges in adaptive management of riparian and coastal ecosystems. Conservation Ecology (online) 1: 1 [Available from the Internet. URL: http://www.consecol.org/vol1/iss2/art1].

Wickett, W. P. 1954. The oxygen supply to salmon eggs in spawning beds. Journal of the Fisheries Research Board of Canada 11: 933-953.

Wilson, D. A. 1976. Salmonid spawning habitat improvement study. Project Completion Report 1-93-D. Washington State Department of Fisheries and National Marine Fisheries Service.

TUOLUMNE RIVER TECHNICAL ADVISORY COMMITTEE

DON PEDRO PROJECT - FERC LICENSE 2299

MODESTO IRRIGATION DISTRICT
TURLOCK IRRIGATION DISTRICT
CITY & COUNTY OF SAN FRANCISCO
CALIFORNIA DEPARTMENT OF FISH & GAME
U. S. FISH & WILDLIFE SERVICE



333 East Canal Drive Turlock, CA 95381-0949 Phone: (209) 883-8275 Fax: (209) 656-2143 Email: tjford@tid.org

May 10, 2000

Wilton Fryer
Restoration Program Manager
Turlock Irrigation District
333 East Canal Drive
Turlock, CA 95381-0949

Dear Mr. Fryer:

The TRTAC supports the sediment management plan proposal and associated projects submitted by you on behalf of the TRTAC. This effort will lead to a reduction in fine sediments and complement the coarse sediment plan work being fund by AFRP to improve conditions in the Tuolumne River. The TRTAC believes this sediment management proposal represents an important restoration action consistent with the Tuolumne River Habitat Restoration Plan and will complement other restoration projects that are underway in the Tuolumne River corridor.

The Tuolumne River Technical Advisory Committee (TRTAC) is a product of the 1995 Don Pedro Project FERC Settlement Agreement (FSA). The FSA is a precedent-setting document signed by 11 parties representing water agencies, fishery agencies, and environmental groups. The TRTAC has completed a Habitat Restoration Plan for the 52-mile reach of the Lower Tuolumne River, from La Grange Dam to the San Joaquin River. The FSA, the habitat plan, and salmonid restoration plans developed by both the CDFG and US Fish and Wildlife Service, all recognize the importance of appropriate sediment management and the need for improvements in salmonid spawning and incubation from existing conditions.

Authorized by and signed on behalf of the TRTAC,

Tim Ford

Coordinator, TRTAC

Tim Ford

Turlock and Modesto Irrigation Districts

Tim Heyne

California Department of Fish and Game

Gary Taylor

U. S. Fish and Wildlife Service

Ron Yoshiyama

City and County of San Francisco

Jenna Olsen

Tuolumne River Preservation Trust

Nicole Sandkulla

Bay Area Water Users Association

Dave Boucher

Friends of the Tuolumne

CC: TRTAC e-mail distribution



Ron Freitas, Director Stanislaus County Dept. of Planning 1100 H St., 2nd Floor Modesto, CA 95354

RE: Salmon Habitat Restoration Sediment Management Projects

Dear Mr. Freitas,

The CALFED Bay-Delta Program has developed a Proposal Solicitation Package for funding Ecosystem Restoration Projects and Programs in 2001. The Turlock and Modesto Irrigation Districts have been actively working on several fall-run salmon habitat restoration projects along the Tuolumne River since 1997. The TID is the program manager for these projects and coordinator for the Tuolumne River Technical Advisory Committee, TRTAC, which oversees the development of the projects.

This letter is a formal notice on behalf of the TRTAC, that the TID will be submitting a sediment management proposal to CALFED for funding. The project location will be in the prime spawning reach of the river from River Mile 51.6 to 47.9 starting below the old La Grange Bridge. The first phase in 1999 involved sites for spawning gravel re-introduction. This next phase will be development of a method to remove fine sand that has degraded the existing spawning habitat, followed by methods to reduce future fine sediment from degrading the cleaned channel, including a sedimentation basin on DWR property along Gasburg Creek. These tasks will involve access across State and County lands

The project represents the next phase in implementing restoration actions outlined in the draft Habitat Restoration Plan provided to the Planning Department staff in the fall of 1998. This project will expand upon the re-introduction of spawning sized gravel that Department of Fish & Game will conduct downstream of the old La Grange Bridge stared last summer. Currently CALFED has funded the first CDFG project and AFRP has funded the course sediment portion of the proposal. If you have any questions please call me at 2029-883-8316.

Sincerely,

TURLOCK IRRIGATION DISTRICT

Wilton B. Fryer, P.E.

Water Planning Department Manager

wbf: \ferc\project\calfed\PSPSedimentletter00.doc





15 May 2000

Ray Simon, Chairman Stanislaus County Board of Supervisors 1100 H St., 2nd Floor Modesto, CA 95354

RE: Salmon Habitat Restoration Sediment Management Projects

Dear Mr. Simon,

The CALFED Bay-Delta Program has developed a Proposal Solicitation Package for funding Ecosystem Restoration Projects and Programs in 2001. The Turlock and Modesto Irrigation Districts have been actively working on several fall-run salmon habitat restoration projects along the Tuolumne River since 1997. The TID is the program manager for these projects and coordinator for the Tuolumne River Technical Advisory Committee, TRTAC, which oversees the development of the projects.

This letter is a formal notice on behalf of the TRTAC, that the TID will be submitting a sediment management proposal to CALFED for funding. The project location will be in the prime spawning reach of the river from River Mile 51.6 to 47.9 starting below the old La Grange Bridge. The first phase involved sites for spawning gravel re-introduction. This next phase will be development of a method to remove fine sand that has degraded the existing spawning habitat, followed by methods to reduce future fine sediment from degrading the cleaned channel, including a sedimentation basin in Gasburg Creek on DWR property. These tasks will involve access across State and County lands along the river.

The project represents the next phase in implementing restoration actions outlined in the draft Habitat Restoration Plan provided to the Planning Department staff in the fall of 1998. This project will expand upon the re-introduction of spawning sized gravel that Department of Fish & Game conducted downstream of the old La Grange Bridge staring last summer. Currently CALFED has funded the first CDFG project and AFRP has funded the course sediment portion of this proposal. If you have any questions please call me at 2029-883-8316.

Sincerely,

TURLOCK IRRIGATION DISTRICT

Wilton B. Fryer, P.E.

Water Planning Department Manager

wbf: \ferc\project\calfed\PSPSedimentletter00.doc



Environmental Compliance Checklist

1. Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both?

Yes No

2. If you answered yes to #1, identify the lead governmental agency for CEQA/NEPA compliance.

<u>Turlock Irrigation District</u>

Lead Agency

- 3. If you answered no to #1, explain why CEQA/NEPA compliance is not required for the actions in the proposals.
- 4. If NEPA/CEQA compliance is required, describe how the project will comply with either or both of these laws. Describe where the project is in the compliance process and the expected date of completion.

These requirements are applicable to only the Gasburg Creek sediment retention basin and channel reconstruction projects. Initial Study and Negative Declaration will be completed as appropriate.

5. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?

X Yes No

Some access to private property will be required for the fine sediment removal project (Objective 2). Specific locations for this work have not yet been identified. We, therefore, are unable to identify and contact landowners at this time. Permission for access, if necessary, will be obtained within thirty days of approval of this proposal.

Access to California Department of Water Resources property is necessary for activities on Gasburg Creek. Permission for access will be obtained within thirty days of approval of this proposal.

6.	Please indicate what permits or other approvals may be required for the activities contained is
	your proposal. Check all boxes that apply.

LOCAL	Gasburg	Other Work	
Conditional use permit			_
Variance			
Subdivision Map Act Approval			
Grading permit	$\overline{\mathbf{x}}$		
General plan amendment			
Specific plan approval			
Rezone			
Williamson Act Contract cancellation			
Other	_		
(please specify)			
None required			
*	_		

STATE		Gasburg	Other Work
CESA Compliance	(DFG)	X	
Streambed Alteration Permit	(DFG)	X	
CWA &401 certification	(RWQCB)	X	X
Coastal development permit		CDC)	
Reclamation Board Approval			
Notification	(DPC, BCDC)		
Other	,		CDFG
			Collection
			Permit
None required			
FEDERAL		Gasburg	Other Work
ESA Consultation	(USFWS)	X	
Rivers and Harbors Act perm	it (ACOE)		
CWA & 404 permit	(ACOE)	X	
Other	• ,		
(please specify)			
None required			

Land Use Checklist

1.	 Do the actions in the proposal involve physical changes to the land (i.e. grading, planting vegetation, or breaching levees) or restrictions in land use (i.e. conservation easements or pla of land in a wildlife refuge)? 									
	Yes	No								
2.	If NO to #1, explain what types of actions are	NO to #1, explain what types of actions are involved in the proposal (i.e. research or planning)								
3.	If yes to #1, what is the proposed land use change or restriction under the proposal? We propose to re-grade and revegetate a small section of Lower Gasburg Creek.									
4.	If YES to #1, is the land currently under a Wi Not applicable to proposed project.	Villiamson Act contract								
5.	If YES to #1, answer the following: Current land use Current Zoning Current general plan designation	Not applicable to proposed project. Not applicable to proposed project. Not applicable to proposed project.								
6.	If YES to #1, is the land classified as Prime Fa Unique Farmland on the Department of Cons No.	Farmland, Farmland of Statewide Importance or asservation Important Farmland Maps?								
7.	If YES to #1, how many acres of land will be sunder the proposal? Less than one acre.	subject to physical change or land use restrictions								
8.	If YES to #1 is the property currently being c No.	commercially farmed or grazed?								
9.		mber of employees/acre Not applicable Not applicable								
10.	Will the applicant acquire any interest in lane easement)?	nd under the proposal (fee title or a conservation								
	Yes	X No								
11.	What entity/organization will hold the interes	est? Not applicable to proposed project.								
12.	If YES to #10, answer the following:									
Nu	al number of acres to be acquired under proper mber of acres to be acquired in fee mber of acres to be subject to conservation eas	Not applicable to proposed project.								
13.	For all proposals involving physical changes to entity or organization will: manage the property provide operations and maintenance services conduct monitoring	to the land or restriction in land use, describe what California Department of Fish and Game. Turlock Irrigation District. Turlock Irrigation District.								

	Not applicable to proposed project.	•	_	Ū	-	
15.	Does the applicant propose any modifica Water?	itions to the	e water rig	ht or change	e in the delive	ry of
	Yes		<u>X</u>			

14. For land acquisitions (fee title or easements), will existing water rights also be acquired?

16. If YES to #15, describe Not applicable to proposed project.

State of California The Resources Agency Department of Water Resources

Agreement No	
Exhibit	 _

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS

•	
STATE OF CALIFORNIA) COUNTY OF Stanislaus)	
COUNTY OF Stavistics)	
Wilton B Fryer , being first duly sworn, deposes a	and
says that he or she is Water Planning Dept - Mgr. (position title)	of
Turlock Irrigation District	 ,
(the bidder)	
the party making the foregoing bid that the bid is not made in the interest of, or behalf of, any undisclosed person, partnership, company, association, organization or corporation; that the bid is genuine and not collusive or sham; that the bide has not directly or indirectly induced or solicited any other bidder to put in a fasham bid, and has not directly or indirectly colluded, conspired, connived, or agreewith any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought agreement, communication, or conference with anyone to fix the bid price of bidder or any other bidder, or to fix any overhead, profit, or cost element of the price, or of that of any other bidder, or to secure any advantage against the pulbody awarding the contract of anyone interested in the proposed contract; that statements contained in the bid are true; and, further, that the bidder has a directly or indirectly, submitted his or her bid price or any breakdown thereof, or contents thereof, or divulged information or data relative thereto, or paid, and not pay, any fee to any corporation, partnership, company, association, organization bid depository, or to any member or agent thereof to effectuate a collusive sham bid.	ion, der alse eed to bid blick tall not will ion
DATED: 15 May 00 By William B Buyer (person signing for bidder)	
Cub-wiled and amount to hofers me an	
GAIL HUMPHREY Subscribed and sworn to before me on may 15,2000	
NOTARY PUBLIC - CALIFORNIA Stanislaus County	
My Comm. Expires Aug. 18, 2000 (Notary Public)	

(Notarial Seal)

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) PMC

COMPANY NAME		/	
•	/urlock	Irrigation	District

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

Wilton B. Fryer	,	
XFFICIAL'S NAME		·
ATE EXECUTED 15 May OC	EXECUTED IN THE COUNTY OF Stan Jaas	
ROSPECTIVE CONTRACTOR'S SIGNATURE		
Water Planning Dept. Mgr.		
ROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME Turlock living a tion District		

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

- Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
- 2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
- Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
- Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
- Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
- 6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation

- Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
- 7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
- 8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

- 9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
- 10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
- 11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

- Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
- 13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
- Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
- 15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
- 16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
- 17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
- Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL WHOM B Suyer	Water Planning Dept. Mgr.
APPLICANT ORGANIZATION	DATE SUBMITTED
Torlock Irrigation District.	15 Hay 00

APPLICATION FOR				OMB Approval No. 0348-00
FEDERAL ASSISTA	NCE	15 May OC	>	Applicant Identifier
1. TYPE OF SUBMISSION:		3. DATE RECEIVED BY	STATE	State Application Identifier
Application Construction	Preapplication		· <u>·</u>	
X Non-Construction	Construction Non-Construction	4. DATE RECEIVED BY	FEDERAL AGENCY	Federal Identifier
5. APPLICANT INFORMATION	Moir-construction			
Legal Name			Organizational Unit:	
Turlock Ir	rigation Dist	rict	Water P	lanning Dept. number of person to be contacted on matters involved.
Address (give city, county, State	, and zip code):		Name and telephone i	number of person to be contacted on matters involve
PO Bex 949			this application (give a	
Turlock CA 9	5381		Wilton B.	Fryer 209-883-8316
6. EMPLOYER IDENTIFICATIO	N NUMBER (EIN):		7. TYPE OF APPLICA	ANT: (enter appropriate letter in box)
94-6001	460			<u>G</u>
			A. State	H. Independent School Dist.
8. TYPE OF APPLICATION:	_		B. County	I. State Controlled Institution of Higher Learning
⊠ Nev	v	Revision	C. Municipal D. Township	J. Private University K. Indian Tribe
If Revision, enter appropriate let	ter(s) in box(es)	ן ר	E. Interstate	L. Individual
		اــا لــا	F. Intermunicipal	M. Profit Organization
A. Increase Award B. Dec	crease Award C. Increas	e Duration	G. Special District	N. Other (Specify)
D. Decrease Duration Other	(specify):			
	•		9. NAME OF FEDERA	
<u>.</u>			CALFED	- USBR .
10.01711.00.05.5505011.0	011F070 100071110F11			
10. CATALOG OF FEDERAL D	OMESTIC ASSISTANCE N	UMBER:	1	TLE OF APPLICANT'S PROJECT:
			Tuolumne	e River Fine Sediment
TITLE:			Manageme	ru F
12. AREAS AFFECTED BY PR	OJECT (Cities, Counties, St	ates, etc.):	1 ia naje mi	, 4
Stanislaus Co.				
13. PROPOSED PROJECT	14. CONGRESSIONAL D	ISTRICTS OF: #/8	Gary Cone	dif
Start Date Ending Date	a. Applicant		b. Project	
15. ESTIMATED FUNDING:	·		16. IS APPLICATION ORDER 12372 PF	SUBJECT TO REVIEW BY STATE EXECUTIVE ROCESS?
a. Federal	\$ 016			
	910,	486	a. YES. THIS PRE	APPLICATION/APPLICATION WAS MADE
b. Applicant	\$,00	I.	E TO THE STATE EXECUTIVE ORDER 12372 FOR REVIEW ON:
c. State	\$	00	DATE	
d. Local	\$		DATE	· ·
Districts		000	-	AM IS NOT COVERED BY E. O. 12372
e. Other	\$.00	OR PRO	GRAM HAS NOT BEEN SELECTED BY STATE
f. Program Income	\$,00	- FOR AL	
707		00	17. IS THE APPLICA	NT DELINQUENT ON ANY FEDERAL DEBT?
g. TOTAL	\$ 943,	486	Yes If "Yes,"	attach an explanation.
	AUTHORIZED BY THE G	OVERNING BODY OF TH		TION ARE TRUE AND CORRECT, THE HE APPLICANT WILL COMPLY WITH THE
a. Type Name of Authorized Re		b. Title.		c. Telephone Number
Wilton B Fry		Water Plann	ins Dept. Mar	209-883-83/6
J. Signature of Authorized Bepr				e. Date Signed
	1er			15 May 00
Previous Edition Usable				Standard Form 424 (Rev. 7-97)
Authorized for Local Reproductive	OH			Prescribed by OMB Circular A-102

INSTRUCTIONS FOR THE SF-424

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0043), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This is a standard form used by applicants as a required facesheet for preapplications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in to review

Item:	Entry:	Item:	Entry:
1.	Self-explanatory.	12.	List only the largest political entities affected (e.g., State, counties, cities).
2.	Date application submitted to Federal agency (or State if		
	applicable) and applicant's control number (if applicable).	13.	Self-explanatory.
3.	State use only (if applicable).	14.	List the applicant's Congressional District and any District(s) affected by the program or project.
4.	If this application is to continue or revise an existing award,		
	enter present Federal identifier number. If for a new project, leave blank.	15.	Amount requested or to be contributed during the first funding/budget period by each contributor. Value of inkind contributions should be included on appropriate
5.	Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application.		lines as applicable. If the action will result in a dollar change to an existing award, indicate <u>only</u> the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet.
6.	Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service.		For multiple program funding, use totals and show breakdown using same categories as item 15.

- Applicants should contact the State Single Point of 16. Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the Check appropriate box and enter appropriate letter(s) in the State intergovernmental review process.
 - 17. This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes.
 - 18. To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.)

- 7. . Enter the appropriate letter in the space provided.
- 8. space(s) provided:
 - -- "New" means a new assistance award.
 - -- "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date.
 - -- "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation.
- 9. Name of Federal agency from which assistance is being requested with this application.
- 10. Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested.
- 11. Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project.

4
_
_
○ ⁄
_
~
w
*
•
0348-004
-
_
•
\sim
ġ
_
_
=
ω.
Š
_
0
=
ğ
<u> </u>
$\overline{}$
<u> </u>
_
~
m
_
≂
_
BWC C
_

BUDGET INFORMATION - Non-Construction Programs

A STATE OF THE STA		ン 山の	SECTION A - BUDGET SUMMARY	МАКУ		
Grant Program Function	Catalog of Federal Domestic Assistance		Estimated Unobligated Funds		New or Revised Budget	et e
or Activity	Number	ıΨ.	Non-Federal	Federal	Non-Federal	Total
(a)	(q)	(0)	(p)	(e)	(£)	(b) ·
1.		\$	\$	\$ 910,486	\$ 33,000	\$ 443, 486
2.						
3.						
4.	·				i	
5. Totals		\$	₩.	\$	€	G
		SECTI	SECTION B - BUDGET CATEGORIES	GORIES		
6 Object Class Categories	ries		GRANT PROGRAM, F	GRANT PROGRAM, FUNCTION OR ACTIVITY		Total
		(1)	(2)		(4)	(5)
a. Personnel		₩.	↔	↔	· •	€
b. Fringe Benefits	S					
c. Travel						
d. Equipment						
e. Supplies					•	
f. Contractual		583,967				
g. Construction		300,000				
h. Other						
i. Total Direct Ch	i. Total Direct Charges <i>(sum of 6a-6h)</i>	£96'883				
j. Indirect Charges	S6	26,519				
k. TOTALS (sum of 6i and 6j)	n of 6i and 6j)	\$ 910,486	s		\$	\$
のできる 地名のから						
7. Program Income		€	₩.	↔	₩	€
Previous Edition Usable		Autho	Authorized for Local Reproduction	luction	Stan	Standard Form 424A (Rev. 7-97) Prescribed by OMB Circular A-102

Standard Form 424A	Authorized for Local Reproduction	
	23. Remarks:	
		۰

	SECTION	SECTION C - NON-FEDERAL RESOURCES	ESOURCES		
(a) Grant Program		(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
		\$	₩.	ક્ક	\$
6					
10.					
11.					
12. TOTAL (sum of lines 8-11)		\$	₩	ક્ક	\$
	SECTION	SECTION D. FORECASTED CASH NEEDS	SH NEEDS		
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 368,849	\$ 97,928	\$ 75,170	\$ 32,134	\$ 163,717
14. Non-Federal(アスプスC)	33,000	15,000	(8,000		
15. TOTAL (sum of lines 13 and 14)	8 40 1, 849	826'211 \$	\$ 93,170	\$ 32,134	\$ 163,717
SECTION E - BU	SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT	FEDERAL FUNDS NE	EDED FOR BALANCE (OF THE PROJECT	
(a) Grant Program			FUTURE FUNDING PERIODS (Years)	PERIODS (Years)	
		(b) First	(c) Second	(d) Third	(e) Fourth
16.		\$ 368,949	\$ 541,537	⇔	₩.
17.					
18.					
19,					
20. TOTAL (sum of lines 16-19)		\$	\$	\$	₩
	SECTION F	SECTION F. OTHER BUDGET INFORMATION	FORMATION		
21. Direct Charges:		22. Indired	22. Indirect Charges:		

U.S. Department of the Interior

Certifications Regarding Debarment, Suspension and Other Responsibility Matters, Drug-Free Workplace Requirements and Lobbying

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. See below for language to be used; use this form for certification and sign; or use Department of the Interior Form 1954 (DI-1954). (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.).

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12.)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

CHECK IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 - (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

CHECK __ IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

DI-2010 March 1995 (This form consolidates DI-1953, DI-1954, DI-1955, DI-1956 and DI-1963)

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK VIF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL.

Alternate I. (Grantees Other Than Individuals)

- A. The grantee certifies that it will or continue to provide a drug-free workplace by:
 - (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
 - (b) Establishing an ongoing drug-free awareness program to inform employees about-

(1) The dangers of drug abuse in the workplace;

(2) The grantee's policy of maintaining a drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance programs; and

- (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --

1) Abide by the terms of the statement; and

- (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
- (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;
- (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --

 Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

- (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).
- B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Turlock Irrigation District

JUNGE

Check __ if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK _ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL.

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;
- (b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

DI-2010 March 1995 (This form consolidates DI-1953, DI-1954, DI-1955, DI-1956 and DI-1963) PART E:

Certification Regarding Lobbying

Certification for Contracts, Grants, Loans, and Cooperative Agreements

CHECK IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND THE AMOUNT EXCEEDS \$100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT, SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.

CHECK __ IF CERTIFICATION IS FOR THE AWARD OF A FEDERAL LOAN EXCEEDING THE AMOUNT OF \$150,000, OR A SUBGRANT OR SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

TYPED NAME AND TITLE WILTON B Fryer hater Planning Dept. Mgu

DATE

15 May 00

DI-2010

March 1995